

# **Fundamentals of Total Quality Leadership**

## **Module 1: DON Quality Approach**

# Instructor Information

## Lesson Outline

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## Lesson Objectives

At the end of this module the student will be able to:

- EO 1-1 Describe contributions of W. Edwards Deming to quality management.
- EO 1-2 Define quality.
- EO 1-3 Describe the different dimensions of quality.
- EO 1-4 Explain how the customer defines the quality of a product or service.
- EO 1-5 Define process.

## **Instructor Information (continued)**

### **Lesson Objectives (continued)**

- EO 1-6 Differentiate between significant and critical processes.
- EO 1-7 Contrast two approaches to quality.
- EO 1-8 Describe the chain reaction for quality improvement.
- EO 1-9 Describe benefits of quality.
- EO 1-10 Explain how the DON defines Total Quality Leadership.

### **Length of Instruction**

This module takes approximately 4.5 hours

### **Methods of Instruction**

Lecture, videotape, and discussion

### **Media Required**

Overhead projector, screen, video cassette recorder, television monitor, chartpack, and felt-tip pens

### **Videotapes**

- "The Prophet of Quality - Part 1"
- "TQL Welcome Aboard"
- "TQL: A Marine Experience"

### **Additional Readings**

DON Executive Steering Group guidance on Total Quality Leadership (TQL)  
Secretary of the Navy (1991, June). Washington, D. C.: Department of the Navy.

The Department of the Navy strategic plan for Total Quality Leadership. DON  
Executive Steering Group (1992, February). Washington, D. C.: Department of the  
Navy.

How the Deming philosophy transformed the Department of the Navy. Kidder, P.J. and  
Ryan, B. (1996, Summer). National Productivity Review.

# Fundamentals of **T**otal **Q**uality **L**eadership

Module 1  
DON Quality Approach

## Fundamentals of Total Quality Leadership (FTQL)

### Module 1: DON Quality Approach

In this module you will learn what quality means, how quality relates to processes, the different ways to achieve quality, and why the pursuit of quality is important for the Department of the Navy (DON).

## Learning Objectives

*At the end of this module the student will be able to:*

- ◆ Describe contributions of W. Edwards Deming to quality management
- ◆ Define quality
- ◆ Describe the different dimensions of quality
- ◆ Explain how the customer defines the quality of a product or service
- ◆ Define process
- ◆ Differentiate between significant and critical processes
- ◆ Contrast two approaches to quality
- ◆ Describe the chain reaction for quality improvement
- ◆ Describe benefits of quality
- ◆ Explain how the DON defines Total Quality Leadership

## Learning Objectives

*At the end of this module the student will be able to:*

- ◆ **Describe contributions of W. Edwards Deming to quality management**

We will introduce you to some of the contributions made by W. Edwards Deming to quality management. We will explore the historical and economic background that led the Japanese to produce quality goods.

- ◆ **Define quality**

We will define the word “quality” and discuss why quality is so important to the Department of the Navy.

- ◆ **Describe the different dimensions of quality**

You will learn that quality has many dimensions and is defined in terms of context, perception, needs and wants. In defining quality, you will learn about the conditions that must be met to achieve quality.

◆ **Explain how the customer defines the quality of a product or service**

You will learn why it is difficult to define quality and why it is important the customer defines the quality of the products and services provided by the organization.

◆ **Define process**

You will learn the definition of process and that everything we repeatedly do involves processes.

◆ **Differentiate between significant and critical processes**

You will learn the DON's definition of and the differences between significant and critical processes.

◆ **Contrast two approaches to quality**

You will learn the difference between inspection and process improvement as ways to achieve quality.

◆ **Describe the chain reaction for quality improvement**

You will learn about DON's chain reaction for quality improvement and how quality relates to cost and productivity.

◆ **Describe benefits of quality**

You will learn about the benefits of focusing on quality.

◆ **Explain how the DON defines Total Quality Leadership**

You will learn what Total Quality Leadership (TQL) means to the Department of the Navy and why this approach to quality management is advocated.

## DON Quality Journey

- ◆ Pilot projects started in mid 1980s
- ◆ Implementation approach developed (1989)
- ◆ DON adopted "Total Quality Leadership" (1990)
- ◆ DON develops Strategic Plan for TQL (1992)
- ◆ DON published *Forward...From the Sea* (1994)
- ◆ Implementation of the Leadership Continuum (1996)
- ◆ DON commands received TQL recognition from public and private sectors (1992 to present)

### DON Quality Journey

There are few people today in the DON who have not heard of **Total Quality Management** or **Total Quality Leadership**. However, a brief history appears appropriate in order that you may understand how the commitment to TQL in the DON evolved. Much of this early history can be found in the book, *Thinking About Quality*, Dobyns and Crawford-Mason.

#### ◆ Pilot projects started in mid 1980s

- DON began a pilot program at Naval Aviation Depot, North Island, CA (1984).

There was a great deal of interest in quality and Deming's work both at the Naval Aviation Depot (NADEP), formerly known as the Naval Air Rework Facility (NARF), at North Island and at the systems commands in the DON. Process improvement efforts and subsequent cost savings were documented. These early successes convinced RADM John Kirkpatrick (formerly commanding officer of North Island and in charge of all NADEPs at NAVAIR) to expand the quality improvement efforts to other aviation depots.

- **NAVAIR sponsored the DON TQM implementation strategy (1985).**

As a follow-on to a 1985 NAVAIR sponsored feasibility study, the term “Total Quality Management (TQM)” was defined and an implementation strategy for TQM was developed. The DON TQM implementation strategy had three components: the definition of TQM, the delegation of responsibility for process management to field activities, and headquarters' responsibilities for strategic change. The general implementation strategy was as follows:

The commanding officers of all aviation depots shall assume the responsibility in their commands for improving all of the [internal] processes to meet or exceed the needs and expectations of their [external] customers. Any impediments to these efforts should be raised through the chain of command for resolution. In addition, headquarters or headquarters-level staff organizations will develop strategies and plans to facilitate the practice of TQM[L] throughout the depots. The headquarters effort should be coordinated at the NAVAIR level (Dockstader, 1985).

The intent of the implementation strategy was to promote a common approach, a common language, and an understanding of quality improvement in the six aviation depots.

- **NAVAIRSYSCOM began TQM efforts (1988).**

VADM Wilkinson, then commander of NAVAIR, supported the quality efforts at the NADEPs and in 1988 expanded their application throughout NAVAIR. In 1989, NAVAIR received the first Presidential Award for Quality and Productivity Improvement. NAVAIR was cited for improved performance over a four-year period throughout its work force. Improved management enabled NAVAIR to achieve substantial savings through acquisition streamlining, an increased number of mission-capable aircraft, an improved spare parts inventory, and increased training for maintenance personnel (Malatino, Zeiher, and Armstrong, 1991).



## ◆ **Implementation approach developed (1989)**

- **SECNAV established the DON Executive Steering Group (1989).**

The DON's approach to TQM required work from an executive-level team. To emphasize TQM as a priority initiative, Mr. Garrett, then UNSECNAV, established the DON Executive Steering Group (ESG), a group of top leaders from the shore support establishment as well as from the Office of the Chief of Naval Operations (CNO) and from Headquarters Marine Corps. The group was formed to lead and guide TQM in the DON, beginning with the shore support activities.

While there are other approaches to quality improvement, the DON ESG adopted the Deming approach. This approach focused on leadership's responsibilities and emphasized the practice of quality improvement throughout the organization within a systems context. This approach has a proven track record in U.S. industry and service organizations, including those in the DON.

- **DON ESG promoted TQL education and training (1989).**

One of the first tasks the ESG focused on was education and training for DON leaders and managers. To accomplish this, the ESG chartered the Education and Training Quality Management Board (February 1989) to develop an education and training strategy for TQM.

In 1991, the DON ESG formed the Education and Training Advisory Board, as a subgroup of the ESG, to monitor the development and implementation of TQL education and training in the DON.

## ◆ **DON adopted "Total Quality Leadership" (1990)**

In acknowledgment of the unique role of leadership in military operational commands, as well as the emphasis in the "quality philosophy" on the responsibilities of leadership, the ESG adopted, in October 1990, the term "Total Quality Leadership" (TQL).



- **DON published *DON Executive Steering Group Guidance on Total Quality Leadership (TQL)* (1991).**

The DON published the *DON Executive Steering Group Guidance on Total Quality Leadership (TQL)*. It is the first official publication that defines TQL and identifies the Department's support establishment end user as the Sailor and Marine. It also defines the purpose for the shore support establishment of the DON: to provide the Sailor and Marine with the ability to go anywhere, anytime to defend the nation's interests successfully and survive. It included the NAVAIR definition of TQM after adoption by the DON ESG.

- **CNO established CINCPACFLT and CINCLANTFLT TQL teams (1991).**

The Fleet Commanders in Chief began total quality education and training in operational units with the establishment of five CNO TQL fleet teams composed of active duty personnel representing the three warfare communities--aviation, surface, and submarine. Following this training, the CNO selected 11 "demonstration" units--6 LANTFLT and 5 PACFLT--to implement TQL in the fleet with the help of the CNO TQL fleet teams.

The fleet teams' initial efforts have been documented in a report, *TQL in the Fleet: From Theory to Practice* (Wasik & Ryan, 1993).

- **DON established DON Review Commission (DONRC) 1991.**

The DONRC was established to bring together the leaders from the different communities to maximize efficiency and gain substantial improvements in overall defense management. It served as the DON's corporate board, playing a critical role in shaping the DON's future.

In 1993, following the reorganization of the DON, the DONRC was restructured and tasked to oversee the development and deployment of DON ESG guidance throughout the DON. It served as the implementing board for the DON, authorized to establish and oversee critical DON efforts. The DONRC was linked to the various DON strategic goal groups. One of their taskings included determining the strategies and actions required to support the DON strategic goals. Many of the DONRC members were members of the original ESG.



◆ **DON published *Department of the Navy Strategic Plan for Total Quality Leadership* (1992)**

In September/October 1990, ESG members participated in a 4-day strategic planning session that focused on quality issues. During this session, the ESG worked on a strategic plan for the DON, putting forth a **Vision** and **Guiding Principles**. The **vision** statement addresses what the organization should be by the year 2000. The **guiding principles** direct the achievement of that vision. Eighteen months later, the ESG produced the DON **Strategic Goals**. All three of these papers are the foundation for the *Department of the Navy Strategic Plan for Total Quality Leadership* (1992), a document that is the first of its kind in the history of the Department. This document states that the entire Department ". . . will focus on quality as it plots its course for the future." The emphasis is on a fully integrated Navy-Marine Corps team. Integration is the first of the five strategic goal areas. The remaining four areas are Human Resources, Education & Training; Acquisition; Innovation & Technology; and Facilities.

● **DON established training sites to support TQL implementation (1992).**

To provide an in-house capability in TQL education and training, two TQL training sites were established (1992), one on the East Coast and one on the West Coast.

● **SECNAV and CNO published the *Navy Policy Book* (1992).**

The SECNAV and CNO also published the *Navy Policy Book* (Chief of Naval Operations, 1992) which was distributed Navy-wide. This book describes internal policy issues and helps in defining the shape and size of the naval service for the next century. A stated Navy objective is a commitment to continual improvement in the way the Navy carries out its mission and takes care of its people.

● **DON published . . . *From the Sea: Preparing the Naval Service for the 21st Century* (1992).**

In 1992, the DON published a "white paper" (. . . *From the Sea: Preparing the Naval Service for the 21st Century*) that provides for the future direction of the Navy and Marine Corps as it faces the challenges of a new security environment and a changing national security policy. The new direction expressed in this strategic document is to provide the nation with "naval expeditionary forces - shaped for joint operations - operating forward from the sea - tailored for national needs."

- **CNO restructured CNO Executive Steering Committee (ESC) and Navy Staff ESC (1992).**

The CNO restructured the CNO ESC into a four-star decision-making group. The members are the DON Unified and Specified Commanders and Fleet Commanders. The meetings have replaced the CINC's conferences. This group guides TQL efforts affecting the operational side of the Navy.

The Navy Staff ESC was chartered by and directly supports the CNO ESC. In addition to Navy-wide tasks, it has replaced and assumed the tasks of the former OPNAV ESC. The Navy Staff ESC prepared the Navy and Marine Corps white paper . . . *From the Sea: Preparing the Naval Service for the 21st Century* (Department of the Navy).

- **SECNAV restructured DON ESG (1993).**

To continue the quality transformation and meet the challenges of a less certain global environment and reduced resources, the SECNAV restructured the ESG (1993) following the reorganization of the Navy. The new ESG, reflecting the top leadership in the DON (SECNAV, CNO, CMC, with the UNSECNAV as executive secretary), was to provide unified, top-level commitment and leadership.

- **UNSECNAV sponsored the TQL Strategic Planning Facilitator Development Program (1993).**

In response to the growing interest and demand within the DON for trained strategic planning facilitators, a program was designed to provide the Navy and Marine Corps with a standard, in-house capability to facilitate strategic planning. In 1993, 48 facilitators were trained. Initially, the service for strategic planning facilitation was offered to flag and general officers and senior civilians. More information on this program can be found in the *TQLeader*, February 1994.

- **USMC completed a strategic plan for TQL (1994).**

In January 1994, the USMC completed work on a strategic plan for TQL. It was signed off by the CMC.

#### ◆ DON published *Forward...From the Sea* (1994)

In October 1994, the DON published a “white paper,” *Forward...From the Sea* which updates and expands the strategic concept promulgated in *...From the Sea* (1992) and specifically addresses the unique contributions of naval expeditionary forces in peacetime operations, responding to crises, and regional conflicts. *Forward...From the Sea* amplifies the scope of the DON strategic concept, while confirming the course and speed for the Naval Services as defined in the original 1992 document.

#### ◆ Implementation of the Leadership Training Courses (1996)

As part of the Navy’s concept of the Leadership Continuum, a recruitment to retirement continuum, eight Leadership Training Courses (LTCs) were developed. These Officer and Enlisted courses were designed to meet the ever evolving needs of the fleet’s leadership skills and competencies requirements.

Drawing from and sharing current leadership experience and containing fleet-relevant case studies, these leadership courses are in keeping with the CNO’s guidance for courses that are “lean, hard-hitting, intense, and Navy developed.”

The courses are two weeks in duration and will be taught world-wide. Attendance is mandatory for enlisted personnel upon selection for advancement. Officer training is also mandatory and will take place en route to the next duty assignment. The eight courses are as follows:

- Command Leadership Course
- Executive Leadership Course
- Advanced Officer Leadership Course
- Intermediate Officer Leadership Course
- Basic Officer Leadership Course
- Chief Petty Officer Leadership Course
- First Class Petty Officer Leadership Course
- Second Class Petty Officer Leadership Course

◆ **DON commands received TQL recognition from public and private sectors (1992 to present)**

- The Naval Aviation Depot Operations Center, Patuxent, MD, and North Island Naval Aviation Depot, San Diego, CA, won the Quality Cup awarded by *USA Today* for 1992 and 1993, respectively, the only government agencies to be so recognized nationwide.
- In 1993, the Naval Air Warfare Center, Aircraft Division, in Lakehurst, N. J. (formerly known as the Naval Air Engineering Center) and the Naval Aviation Depot, Cherry Point, N.C., won the coveted Quality Improvement Prototype award given annually by the Federal Quality Institute.
- Marine Corps Logistics Base, Albany, GA, received the 1993 Secretary of Defense Superior Management Award.
- The Aviation Supply Office, Philadelphia, PA, received the 1993 Federal Leadership Award by the *Government Executive* magazine.
- The Naval Air Systems Command was awarded the 1994 Presidential Award for Quality.


★ **Additional Information:** More information on these and other award winners and finalists can be obtained from the Department of the Navy TQL Office internet home page at <http://tql-navy.org> or electronic bulletin board at (703) 602-9094 or DSN 332-9094.



# ***Video:***

## ***“The Prophet of Quality” Part I***

### **Video: “The Prophet of Quality - Part I”**

 **Video:** Show the video “*The Prophet of Quality - Part I*”.  
Stop the video at the beginning of the discussion of “The Fourteen Points”.

**Time: 20 minutes**

## Contributions of Dr. Deming

- ◆ Introduced statistical quality control to Japan in the 1950's
- ◆ Credited with having a major influence on Japan's economic recovery after World War II
- ◆ Led the third wave of the industrial revolution in the U. S.

### Contributions of Dr. Deming

In the early 1950's, the perception of products stamped "Made in Japan" were considered junk. Today, this is no longer true. What happened? How did a country with no natural resources become an economic giant?

#### ◆ Introduced statistical quality control to Japan in the 1950s

W. Edwards Deming was largely responsible for turning the Japanese economy around after the war. As part of the Japanese reconstruction team in 1945, General MacArthur took 200 scientists and specialists, including Dr. Deming, to Japan to help rebuild the nation. Deming was asked to go because of his knowledge about sampling methods to be used for conducting a census.

While Deming was working on the census in Japan, two incidents happened. First, the Union of Japanese Scientists and Engineers (JUSE) asked him to lecture on quality as part of the effort to rebuild the country. Deming based his lectures on the classes he had conducted during the war and Walter Shewhart's teachings.

◆ **Credited with having a major influence on Japan's economic recovery after World War II**

Second, Ichiro Ishikawa, the first president of JUSE and a past professor to many CEOs of Japan, told many CEOs to attend a Deming lecture if they wanted to turn the economy of Japan around in five years. The CEOs listened to Deming's lectures about using statistics in manufacturing to achieve quality at reduced cost. Deming also talked about the use of statistical tests and surveys to enhance market research.

Deming talked about restoring the responsibility for achieving quality to the line managers. He did not feel the quality assurance function should be a separate department. Eventually, many manufacturing companies in Japan adopted Deming's approach and his belief in the importance of quality and long-range planning. This is what he taught the Japanese and what the Department of the Navy is now using.

Two areas in which the Japanese had the most immediate success were in steel making and shipbuilding. The U.S. lost the market share in steel making by 1968. In the U.S., shipbuilding is now a very limited industry.

◆ **Led the third wave of the industrial revolution in the U. S.**

During the 1950's, our own country was thriving economically. We were the only highly industrialized country that still had its factories intact. Our production capabilities were unmatched throughout the world. Although we had practiced some statistical quality control during the war, these methods were dropped after the war due to the high demand for consumer products. Because of the high demand, the quality that we had been producing gave way to an emphasis on quantity and quotas (cost cutting). This led to an obsession with meeting schedules. Over the years, we were content to produce **satisfactory** products, while Japan was learning how to produce **quality** products at reduced cost. This quality advantage became a threat to American industry and is a reason why American corporations were in decline. The emphasis has been on productivity at the expense of quality.

In the past decade, many American industrial leaders have become aware of Japan's high performance and Dr. Deming's emphasis on quality. They have learned about quality through Deming's teachings on effective management practices, a need for a well-educated and trained work force, and an understanding and use of statistical techniques. Emphasis on quality has been the basis for successful Japanese business practices and has influenced many American companies to become more competitive and successful.



In the spring of 1980, NBC produced and aired an hour-long documentary titled If Japan Can . . . Why Can't We? The videotape was co-written and narrated by NBC correspondent Lloyd Dobyns and produced by Claire Crawford-Mason as a white paper, or authoritative report, on American management practices. A large portion of the show addressed the concept of quality and stimulated the awakening in this country to our quality problems and laissez-faire system of management. A segment of the program featured Dr. Deming and William Conway (past CEO of Nashua).

William Conway, then CEO of Nashua Corporation, stated in the videotape, If Japan Can...Why Can't We?, that Deming led "the third wave of the industrial revolution" in the United States. The first wave was the use of interchangeable parts. The second wave was the use of the assembly line, widely used by Henry Ford and the automotive industry. The third wave is the use and application of quality principles.

In the mid 1980s, a few universities in this country began offering courses in statistics related to production and management as part of their management curricula. Most U.S. business schools are now beginning to teach quality management.

Another Deming contribution was a new way of looking at how labor and management interact in the manufacturing area. He promoted the use of workers to solve some production problems.

Although Dr. Deming became a legend in Japan, he never achieved that level of recognition in his own country. Dr. Deming died in December 1993.

## Definition of Quality

qual.i.ty (kwal e ti), n.

### Websters Dictionary:

- ◆ Peculiar or essential character
- ◆ An inherent feature or property
- ◆ A distinguishing attribute or characteristic
- ◆ The degree of excellence which a thing possesses

### DON Definition:

- ◆ The extent to which a product or service meets or exceeds customer requirements and expectations

## Definition of Quality

Webster's Ninth New Collegiate Dictionary (1990) defines quality (in part) as:

- Peculiar and essential character: nature
- An inherent feature: property
- A distinguishing attribute: characteristic
- Degree of excellence: grade

*Synonyms: Property, character, attribute*

- *Quality* is a general term applicable to any trait or characteristic whether individual or generic.
- *Property* implies a characteristic that belongs to a thing's essential nature and may be used to describe a type of species.
- *Character* applies to a peculiar and distinctive quality of a thing or a class;
- *Attribute* implies a quality ascribed to a thing or a being.


**DON definition of quality:** The extent to which a product or service meets or exceeds customer requirements and expectations.

## Dimensions of Quality

- ◆ Performance
- ◆ Timeliness
- ◆ Reliability
- ◆ Durability
- ◆ Aesthetics
- ◆ Personal interface
- ◆ Reputation
- ◆ Ease of use
- ◆ Features
- ◆ Consistency
- ◆ Uniformity
- ◆ Accuracy
- ◆ Conformance to specifications
- ◆ \_\_\_\_\_

### Dimensions of Quality

Since our emphasis is now on quality, let's discuss some different ways to describe quality.

 **Instructor Direction:** To get the students to start thinking about a definition of quality, ask the questions below. Use the easel and pad to list the questions about quality and to record student responses. Allow only 5 to 10 minutes for discussion. Later, these responses can be related to the viewgraph **Quality Depends On:** .

### Discussion Questions:

#### 1. What does quality mean to you?

*Typical responses will be in terms of context, perception, needs and wants. Other answers may be cost, reliability, product features or freedom from defects.*

☺ **Discussion Questions (cont):**

2. **In your work place, what does quality mean to your customers and to you as a customer?**

*A response might be, quality is meeting or exceeding customer expectations. Other responses might be the service or product does what its supposed to do, it meets the customers' needs, it meets specifications, or it shows attention to detail.*

3. **When did you first become aware of a change in product or service quality?**

4. **Under what circumstances did you first become aware of a change in American quality?**

From this exercise, we see that quality is multi-faceted and not easy to define.

👉 **Instructor Direction:** You may want to relate the following information to the previous discussion.

If you ask someone who uses a personal computer what determines quality in a computer, you are likely to hear more than one answer (e.g., price, speed, reliability, ease of use, memory storage, etc.). To state a preference, the person must somehow combine these dimensions to select a quality computer.


As another example, consider the purchase of a car. Perhaps you think that a quality car is one that gets good gas mileage, while someone else thinks that a quality car is one that goes from zero to 60 MPH in six seconds.

To improve the quality of a product or service, the supplier and the customer must clearly understand the specific quality dimensions they are considering. The computer salesperson and the car salesperson need to understand the **customer's definition of quality**.

In any work situation, everyone needs to agree on the definition of quality based on customer input for a given product or service.



Here is a list of some dimensions of quality. These dimensions offer a framework for thinking about what determines quality. We present this list to point out how difficult it is to define quality. This list also shows why we can meaningfully discuss quality only in the context of a product or service. These examples will give you ideas about ways you can begin to rethink and talk about quality more effectively in your commands and with your customers.

 **Instructor Direction:** You do not have to describe each dimension. Describe two or three. You might ask the students to provide examples.

**Performance** - Primary operating characteristic. Example: Aircraft speed exceeds Mach 2.

**Timeliness** - Occurring at a suitable time. Examples: Time waiting in line; time to complete repairs; having a report on the third work day of every month; supply requisitions stay in receipt control no longer than 48 hours.

**Reliability** - Extent of failure-free operation. Examples: An appliance outlives the warranty; mean-time-between-failures.

**Durability** - Amount of use before replacement is preferable to repair. Example: Landing gear on the F-14.

**Aesthetics** - Characteristics that relate to the senses. Examples: Cleanliness; no visible defects; style; color.

**Personal interface** - A connection between people. Characteristics such as courtesy, promptness, and professionalism.

**Reputation** - Having a favorable or publicly recognized name or standing. Examples: The Maytag repairman has nothing to do because of the reliability and durability of the product; the Sears reputation for Craftsman tools.

**Ease of use** - Freedom from difficulty or great effort. Examples: User friendly software; handbook of instructions; human factor studies; simplifying the use of the VCR; universal remote controls.

**Features** - Added touches. Examples: Power windows in a car; a spelling checker in a word processing program.



**Consistency** - A product or service is the same throughout and remains constant over time, a time dimension. Examples: A computer program matches its documentation; industry standards for a certain product.

**Uniformity** - Identical, with little variation in detail, a physical feature. Example: Equal thickness of chromium on every nose wheel landing gear going through a plating.

**Accuracy** - The degree of correctness of a quantity, expression, or facts. Example: Number received equals number ordered.

**Conformance to specifications** - Degree to which a product's design and operating characteristics match pre-established standards.

Two more dimensions that we frequently hear about these days relate to **environmental impact** and **health and nutrition**. For example, are the bags used in your grocery store biodegradable? How much fat is in a food product? How much cholesterol?

For all these various quality dimensions, the focus is on **what the customer needs** and **wants**.

## Quality Depends On:

- ◆ The context in which it is used
- ◆ The customer's perception
- ◆ The needs and wants of the customer

### Quality Depends On:

#### ◆ The context in which it is used

From this discussion we see that quality cannot be defined except within a specific context. Plato was the first to write about quality in the western world. He stated that quality was always related to something, i.e., the heavens above, discernment of beauty. The dictionary defines quality as, "A **characteristic**, property, or attribute" of something..." So you have to determine what that "something" is before you can define quality in relation to that "something" (Webster's Ninth New Collegiate Dictionary, 1990).

For example, safety may be an essential quality characteristic for an automobile, but not for a letter prepared for signature. Quality characteristics for a letter might be clarity of content or length.

#### ◆ The customer's perception

Quality is a subjective evaluation by a potential customer. The evaluation is determined by the customer's perception of the product or service. It makes little sense to argue about the validity of a person's perception of quality. It is more important to pay attention to the perception and to produce products and services that satisfy the customer.



Perceptions can be changed. They can be influenced by effective advertising, the reputation of a product or service, friends, experience, and so on. What is important to know is: (a) how is your product or service perceived by a customer, and (b) when has a customer's perception changed. We need to be sensitive to differences and changes in perceptions.

Some marines during the Vietnam conflict complained that the new M-16 rifle was unreliable. A later version (M-16 A1) was more reliable, but the customer's perception of unreliability remained the same. **In the end, it is the customer's perception of quality that really matters .**

### ◆ The needs and wants of the customer

The definition of quality depends on what people **want** as well as what they **need**. A basic question is, "Is there a requirement for the product or service?" In determining requirements, we need to distinguish between needs and wants and attend to both.

There are things in life that we **need** to have (such as food, shelter, and water). These are essential needs. There are learned needs, such as entertainment and transportation. The sailors aboard ship and the marines in the field need certain things to complete their missions effectively. We must design, produce, and improve products and services that satisfy those needs.

Besides needs, there are things in life that we **want**. The sailors aboard ships might want a special liberty port, such as Bangkok (Thailand), but need a port where the ship can take on ammunition and supplies. Marines may want a tank with special features, but what they need is a tough all-terrain vehicle. We may want a car with special features, such as a map light, internally adjustable mirrors, and an automatic shutoff for headlights, but what we need is transportation.

The commanding officer of a naval aviation depot found that pilots wanted their aircraft overhauled at their facility mainly because they liked the appearance of the aircraft at delivery. As an added service to the customer, the depot was painting the instrument panel, repairing torn seats, and so on, to make the aircraft more attractive to the customer. The overhaul went beyond the repairs that were actually needed. Because of the extra service, this NADEP was perceived as a quality NADEP.

In 1976, Honda introduced the coin tray in cars as an extra detail. By the following year, a "want" had become a "need" and coin trays appeared in many other cars.

## Conditions for Quality

**“The difficulty in defining quality is to translate future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay”**

(Deming, 1986)

### Conditions for Quality

Shewhart made the observation that there were problems inherent in defining quality. Deming discusses this observation by Shewhart and says:

**The difficulty in defining quality is to translate future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay (Deming, 1986).**

Deming wrote about the difficulty in defining quality and chose to talk about the conditions that must be met to achieve quality. Deming agreed with Shewhart and said that all these conditions must be present if the result is to be quality achievement throughout the organization. The important point in this statement is that everything focuses on the user (customer).

Deming really talked about defining quality in terms of context, customer's perceptions, and needs and wants. He further defined needs and wants by introducing the concept of customers' future needs.

**The following text amplifies the underlined words.**

### **Future needs**

It may seem a novel idea that considering the future has anything to do with defining quality. But, you must consider customer needs for the future as well as today.

Anticipation of future customer needs is critical in both manufacturing and service. It is not safe for a company to ignore the future. Quality is a long-term strategic concept related to future needs of the external customer for the private sector as well as for government. Through long-range planning, a person develops a relationship with customers to learn about their future needs and wants.

The Department of the Navy says that quality is a strategic concept related to future needs. Top leadership must find out not only what the customer needs now, but also must anticipate what sailors and marines need next year, and in 5, 10, and 15 years down the road. Unfortunately, many leaders don't know who their customers are, let alone what they want - now, and in the future.

★ **Additional Example** : The Ricoh camera company surveyed its customers and found they were fully satisfied with their product. Since the customers never mentioned automatic focus, Ricoh did not add this feature to their cameras. However, Minolta, anticipating customer needs, introduced the automatic focus feature in their cameras and took the market away from Ricoh. Ricoh did not anticipate future needs.

### **User (customer)**

Deming uses the term "user" to describe two types of customers: external and internal. We will discuss these concepts in more detail in a few moments.

### **Measurable**


It is critical to develop measures to assess the effectiveness of efforts to meet customers' needs. Before such measures can be developed, we must identify what aspects of a product or service are important to the customer. We refer to these aspects as **quality characteristics**. In Japan, scientists are studying "flavor engineering." This is a study on how people taste their food. First, customer responses are translated into quality characteristics. The quality characteristics are then quantified.



An example of "flavor engineering" is fake crab meat. A fish called Pollock is used in place of crab, and the texture, flavoring and color are altered to resemble crab meat. Measures are developed to determine if the fake crab is meeting the customer's defined quality characteristics of how crab should taste.

## **Designed**

Quality by design is a very important engineering concept. Once a design is in place, it is very expensive to change, so you want quality by design. Customer requirements must enter into the design of products and services (technical requirements). This is part of what is called **quality deployment** (also referred to as **quality function deployment - QFD** ). Quality deployment is a structured method in which information from customers, or potential customers, (their requirements) is considered throughout product development and production. This method begins early in the design phase of product or service development.

 **Instructor Direction:** To generate some discussion, you may want to ask the class, "What would you consider to be quality characteristics on a ship? How could you measure these quality characteristics?"

## **Satisfaction**

Customer satisfaction is necessary and always the goal, but it isn't sufficient. Satisfaction can change. The goal should be loyalty. Deming made the distinction between a **satisfied** customer who may switch to another product of equal quality and price, versus a **loyal** customer who not only stays with the product, but brags about it to his friends, which can create more business. Some quality advocates talk about the importance of exceeding customer expectations, or delighting the customer.

We develop brand loyalties. Some examples are Colgate toothpaste, General Electric products, Ford cars, or Chevrolet cars, etc. Brand loyalties vary from one person to another. Our loyalties may even change over the years as new products are introduced. What we need is **continuous** satisfaction on the part of the customer.

☺ **Discussion Questions:**

1. **Can you think of any brands that you faithfully bought in the past that you have now dropped in favor of new brands? What were your reasons for switching brands?**

## **Price**

Price is not the same as cost. Price is what the customer will pay for a product or service. We think of cost in two ways: development and production costs for the supplier, and life-cycle costs for the customer.

Accepting the lowest bid or buying something that has the lowest price may not give the customer the best value when life-cycle costs are considered. For example, if we go with the lowest price on a new weapon system, its life cycle costs might be high if it is unreliable or not very durable, resulting in high maintenance costs or early replacement of parts.

If the government buys floppy disks at the lowest price, the purchase is no bargain if many of them fail. Lowest price does not guarantee lowest cost.

Cost is inflated by rework, where prices may have to be increased to cover additional rework costs.

Operational people need to understand the relationship between price and cost. Understanding this concept could help reduce the over all military budget.

- **Value** - As customers, we want a certain level of quality that is at a price we are willing to pay. The level of quality as a function of cost is expressed as **Value = Q/\$** (Value equals quality divided by cost). This is not a standard equation. Value has a different meaning to different customers. For example, some people will only buy a Mercedes even though the Lexus, at a lower price, is probably as reliable. Here again, reputation or image - the customer's definition of quality - affects customer choice and satisfaction.

## Customer and End-User

- ◆ A Customer is a person or group who uses the output of a process
- ◆ An End-User is the ultimate user of a product or service

### Customer and End-User

- ◆ **Customer:** The person or group that establishes the requirements or expectations of a process and receives or uses the output of that process.
- ◆ **End-user:** The ultimate user of a product and service. The end-user in the DON is the Sailor and Marine. Everyone in the Navy and Marine Corps (whether in operational functions, direct support functions, headquarters, etc.), must recognize their responsibility ultimately to contribute to the operational forces. [cf. Garrett, 1990]

In this course, we will use these terms interchangeably.

Identifying the customer is not always an easy thing to do. One normally thinks of a customer as someone who buys and uses a product. But, in the Department of the Navy, we often have a situation where someone buys a product but doesn't use it. For example, in the research and development business, there are commands that pay for (buy) research, but they do not personally use the products. Other people, such as Sailors or Marines, use the product or service. The sponsors pay for work that others use. Are the sponsors customers?

Think about a situation where an aviation depot overhauls an aircraft component and sends it to a supply point where it is stored until it is needed for an aircraft. Can the supply point be considered a customer? There is no set answer on who is the customer. It depends on the context of who you are and what you are doing. In the Navy and Marine Corps, the end-user in the TQL definition is the Sailor and Marine. Others are intermediate customers, and their requirements are also important.

## Identifying Customers

*Leadership has the responsibility to:*

- ◆ **Identify organizational customers**
  - **Combination of external and internal customers**
- ◆ **Develop meaningful dialogue with customers**

### Identifying Customers

*Leadership has the responsibility to:*

#### ◆ **Define organizational customers**

All commands and organizations have customers. It might be difficult sometimes to identify who they are. Look at who is receiving your products or services. Senior leadership has the responsibility to identify organizational customers as they relate to mission performance and readiness. The focus should be on a command's external customers.

- **Combination of external and internal customers**

**External customer** - An individual or group outside the boundaries of the producing organization who receives or uses the output of a process. These are the real customers in the sense that they are the ones who use our products and services. They determine whether or not an organization stays in business.

In the fleet, we need to be concerned with serving our external customers. They are the ones who determine the quality of the services or products we produce. The shore commands serve the fleet. Shore commands need to know who these external customers are and be aware of their requirements.

**Internal customer** - Those individuals within the boundaries of the organization who receive a product or service from someone else in the organization. Each person in an organization receives a product or service from a preceding operation or step. The product could be verbal information, raw material, or a sub-component of a larger product, such as a computer printout, or a requisition form.

Upon receiving a "product," a person (or team) completes his or her designated tasks, and passes the product along to the next person in the operation. Each person, alternately and continually, becomes both a customer and a supplier. This internal customer-supplier relationship continues down the line until the product goes out the door and is delivered to the external customer.

Most sailors don't view their shipmates as customers. Some are aware of certain contacts (suppliers) such as medical, PSD, etc. But what about the individual working in a maintenance shop? His or her internal customer might be the Sailor or Marine sitting two benches away.

People in an organization need to recognize and treat the next person in every process as a customer by trying to meet that customer's needs. Since this realization can greatly facilitate quality improvement, it should be encouraged throughout the organization, whether private or governmental.

Finally, the concept of the internal customer-supplier relationship brings us to the importance of teamwork. In one sense, team performance is the result of contributions from an entire set of customer-supplier relationships in a particular job. You will learn more about teams in the next module. Although it is important to continuously promote positive internal customer-supplier relationships, the primary focus for any organization must be on the **external** customers.

## ◆ Develop meaningful dialogue with customers

★ **Additional Information:** This area is covered in greater detail in Module 2 (Quality Improvement Teams) during the discussion of the roles and responsibilities of the ESC.

- *Identify needs and requirements*

It is extremely important to identify the specific needs and requirements of your customers. This helps to identify ways we can measure what we do from our customer's perspective.

- *Define quality characteristics*

The next step is to translate that customer's need or requirement into a measurable characteristic. A quality characteristic is a property or attribute of a product or service that is considered important to a customer.

- *Develop feedback systems*

In general, most commands have no well-integrated plans that describe what information is to be collected from customers, how it is to be collected, or how it is to be used for improving products and services. Developing and implementing organizational feedback systems should reflect what the customer wants, contain meaningful information, be ongoing, and be proactive in nature.

We've discussed some new terms, now let talk about another new area for many of us -- processes.

## What is a Process?

- ◆ **A series of operations or steps that results in a product or service**
- ◆ **A set of causes and conditions that work together to transform inputs into an output**

### What is a Process?

Let's now look at what a process is and how it relates to quality. Deming said the focus should be on the processes by which work gets done. If we only focus on the quality of the finished product, it is too late. Quality is created by a process.

What is a process? Every service or product you produce in your organization is the result of some process, but most of us do not fully understand what this means.

We need to think about processes in two ways.

- ◆ **A series of operations or steps that results in a product or service**

We generally think of a process as a sequence or series of operations (steps, tasks, activities) that result in a specific output. The output may be either a product (e.g., an aircraft or a sub-component of an aircraft such as the nose wheel landing gear) or a service (e.g., a personnel record entry). There is another way to look at a process.



◆ **A set of causes and conditions that work together to transform inputs into an output**

It is also important to think of a process as a set of causes and conditions that work together to transform inputs into outputs.

The production of an operationally ready aircraft (output) requires the coordination of inputs -- machines, methods, materials, and people. The blending of four variables: machines, methods, materials, and people is the process that results in transforming the inputs into outputs. (Often you can include **environment** as a fifth variable). There can be several stages to the process, or each stage can be considered a process. The aim of TQL is to ensure the outcome of a process meets the customer's needs.


In some of the readings, you will find **output** and **outcome** used synonymously to mean a product or service, or the result of inputs. In TQL, we use the term **output** to refer to a product or service and **outcome** to refer to the customer's perception of the product or service.

## Examples of Processes

- ◆ Loading ordnance
- ◆ Dropping anchor
- ◆ Arranging travel
- ◆ Preparing a report
- ◆ Processing payments
- ◆ Admitting patients
- ◆ Starting propulsion equipment
- ◆ Purchasing supplies
- ◆ Plating metal
- ◆ Training people
- ◆ Preparing a budget
- ◆ Transporting hazardous materials
- ◆ \_\_\_\_\_

### Examples of Processes

Here are some examples of processes, most of which are not manufacturing. Clearly, anything we repeatedly do involves processes, so improving processes applies to all of us. All of these examples involve a series of operations or steps.

 **Instructor Direction:** A useful exercise might be to ask the students to take a minute or two and write down two or three of the more important processes in which they are currently involved. Ask them to volunteer a few examples. Select one or two processes and ask the class, "What are the inputs? What are the outputs? How do you think your customer perceives the outcome of your product or service?"

The realization that all work is composed of processes is one of the most significant insights people can have about TQL. Leaders of an organization are responsible for managing those processes important to the mission of the organization.

## Significant and Critical Processes

### ◆ Significant Processes

- Are processes by which the mission-essential work of the organization is accomplished
- Contribute directly to meeting the needs and requirements of customers
- Can be traced from output (to external customer) back to input (to the organization)

### ◆ Critical Processes

- A stage within a significant process
- One that is deemed as most important for improvement


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### ◆ Critical Processes

- A stage within a significant process
- One that is deemed as most important for improvement

 **Instructor Direction:** Refer the students to the TQL Glossary and review the definition of **Processes**.

## Two Approaches to Quality

- ◆ **Quality through Inspection**
  - To detect and remove poor quality
- ◆ **Quality through Process Improvement**
  - To build in quality

### Two Approaches to Quality

Currently there are two general approaches used by organizations to achieve quality.

#### ◆ **Quality through Inspection**

- To detect and remove poor quality

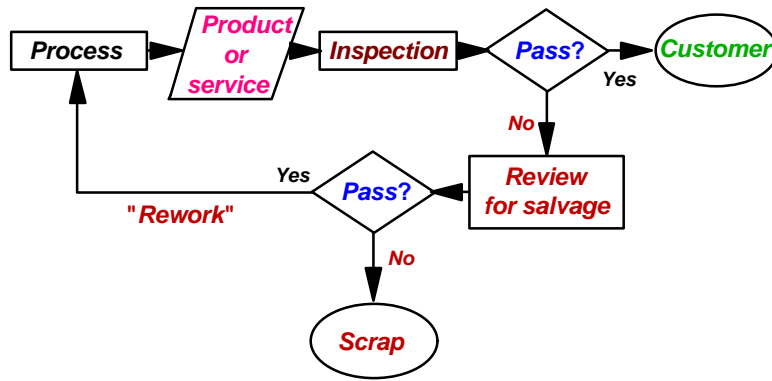
The first approach, **inspection** for defects, has traditionally been the dominant method used in the DON. This method is **product** focused. All outputs (or a sample of outputs) are inspected after production to see if they pass some specified criteria.

#### ◆ **Quality through Process Improvement**

- To build in quality

The second approach, process improvement for the **prevention** of defects, provides a better way to assure quality. This method is **process** focused and is becoming more prominent in the DON as more commands implement TQL. You are going to go upstream to analyze the process, to take it apart and see how it affects the product downstream. Let's look at these approaches in more detail.

## Quality through Inspection

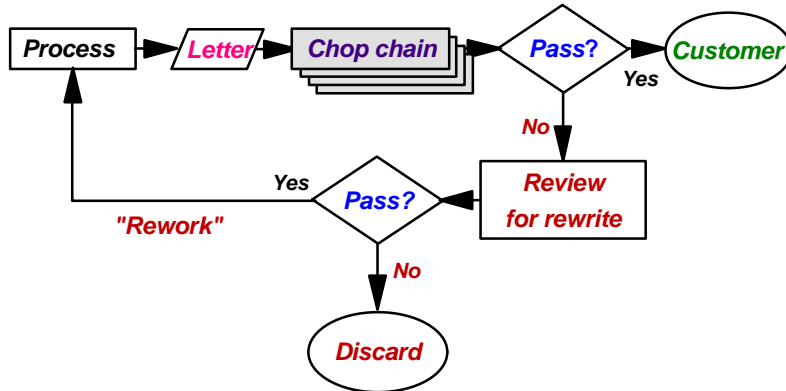


### Quality through Inspection

As recently as ten years ago, the dominant method for achieving quality in the United States was inspection of final products by inspectors or quality control experts after production (Sullivan, 1986). As you can see in this viewgraph, the process produces a product or service. Good products or services are sorted from the bad by inspection. If the product passes inspection, it is shipped to the customer (external or internal). If the product or service does not pass inspection, it is either scrapped or reworked until it becomes good enough to be shipped to the customer. This means that you go back into the process and "do it again." Deming referred to this method of achieving quality as the "management of failure." If we wait until a product is made before we inspect it, it is too late. The defect is already there.

Some companies rely on customers to do the inspection. They wait for customer complaints. If we wait for customer complaints about the quality of our products or services, we may have already lost our customers.

## Inspection Example



### Inspection Example

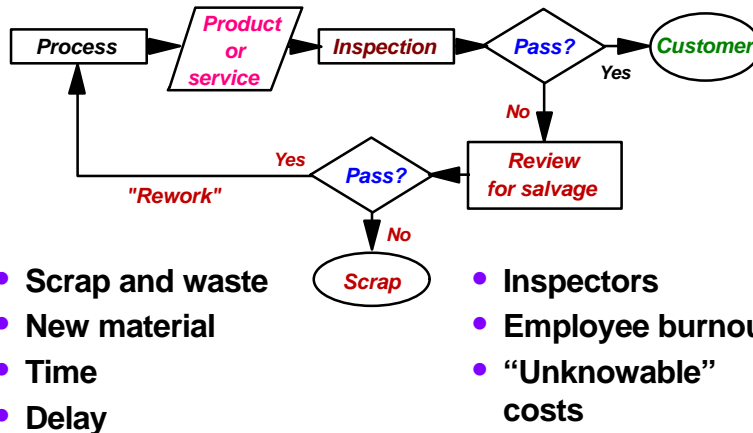
**Instructor Direction:** The purpose of this viewgraph is to provide a service example of the inspection approach - the preparation of a letter for the commanding officer's signature.

This viewgraph illustrates some problems in using the inspection approach for preparing a letter for the commanding officer's signature. A draft letter is written and passed on to a supervisor for review (inspection). The supervisor may approve the letter and send it up the line, or may recommend changes and send it back to the originator. The cycle may repeat itself through each layer of management until it reaches the commanding officer. Sometimes this letter may be sent back to the originator by every level of management up to and including the commanding officer's secretary. The **chop chain** is used to inspect for protocol or formatting in many cases. However, often the rework results from differences in style or other reviewer criteria and not from customer requirements.

Some steps in the chop-chain may be of value. At certain levels of management, approval or added information may be required. But, if the sole purpose of the chop chain is for inspection only, then the usefulness of this approach is questionable.

Consider the effect of the chop chain on the quality characteristic of timeliness. Here, inspection can create a time delay problem for the customer or end-user. In the total quality approach, managers should ask if a step in the chop chain adds any value to the process. If not, get rid of the step and improve the process.

## Costs of Inspection



### Costs of Inspection

What are some shortcomings of the inspection approach for achieving quality? Dr. Joseph Juran, a contemporary of Deming and recognized by the Japanese for his contributions to their quality development, claimed that as little as a 3 to 5 percent failure rate can cost a company, on average, from 10 to 30 percent of the total operating costs (Juran, 1974). The basic idea is that there are costs (labor hours, materials, machine time, energy, etc.) associated not only with reworking a defective product or doing a job over, but also with making a product or providing a service that is wrong in the first place. Let's look at some costs of inspection.

**Instructor Direction:** Ask the students why they think the costs of inspection or rework are so high. After 2-3 minutes of responses, discuss some sources of costs listed on the viewgraph. Relate them to the ones mentioned by the students.

#### ◆ Scrap or waste

Scrap or waste results from using poor quality materials as well as having defective processes.





### ◆ **New material**

If incoming material needs to be reworked, you are adding costs. If you need to order more materials, you are adding costs.

### ◆ **Time**

It usually takes the same amount of time to turn out a good product as it does a bad product. If you consider the time spent correcting defects made in previous operations and the percentage of workers who made the defects in the first place, it is not difficult to see the relationship between poor quality and costs.

### ◆ **Delay**

Delay can result in reliance on overtime or the need for more staff to avoid missing deadlines, both of which drive up costs. Such an increase in costs might require increasing the price of the finished product or service, which would decrease competitiveness. Delays also can cause direct loss through the loss of customers.

### ◆ **Inspectors**

Paying inspectors is expensive. Also, even 100 percent inspection does not guarantee defect-free products. Adding inspectors does not achieve this end. Deming often said that two inspectors are worse than one - when responsibility is shared, accountability is weakened. Motorola conducted a study that showed with 100 percent inspection on an assembly for televisions, only 80 percent defects were detected. With 200 percent inspection, only 10 percent additional defects were detected. This is not an efficient or cost-effective way to achieve quality.

Not all inspection is bad, it does have its place. For example, safety regulations require a pilot to conduct a safety inspection before takeoff. Some inspection may be needed in certain situations, such as when we cannot control the quality of our input materials, or when we do not have enough trained workers.

### ◆ **Employee burnout**

Employee burnout can be caused by substantial amounts of time spent on rework and the awareness of defects and mistakes. Although people might get paid for overtime work, spending excess time on the job and having less personal time can put strain on employees and their families. This raises the stress level and lowers worker morale. Resulting poor health, which increases absenteeism increases costs.

## ◆ "Unknowable" costs

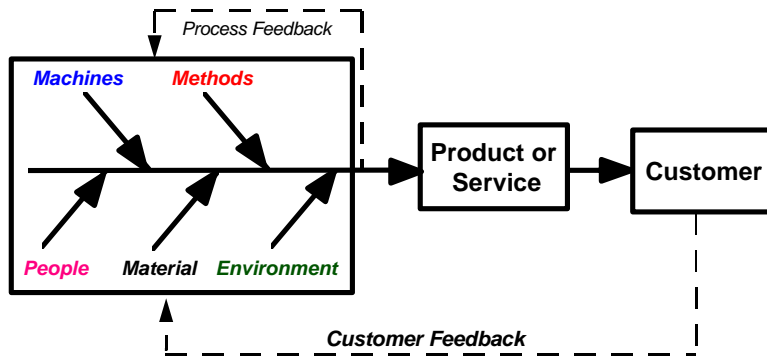
What is the cost of a dissatisfied customer? Studies provide us with estimates on the size of such costs. In a study of consumer complaints conducted for the White House Office of Consumer Affairs during the Carter administration (reported in Albrecht & Zemke, 1985), the following was found:

- The average business never hears from 96 percent of its unhappy customers.
- For every complaint received, the average company has 26 customers with problems, six of which are serious.
- The average person with a complaint will tell nine or ten people about it.
- Of the customers who register a complaint, 54 to 70 percent will do business again with the organization if their complaint is resolved.

★ **Additional Information:** Armand Feigenbaum, a recognized authority in quality management and engineering, and past President of the American Society for Quality Control (ASQC), developed the concept of the "hidden factory" (costs associated with waste that don't usually show up on the books). He estimated that reworking bad products can be as high as 25 to 40 percent of the manufacturer's cost. (Feigenbaum, 1977)

Louis Schultz, CEO of Process Management International, indicates that his firm's research shows cost estimates of waste and rework around 35 percent for production operations and 60 to 90 percent for service functions. (Schultz, 1988)

## Quality through Process Improvement



### Quality through Process Improvement

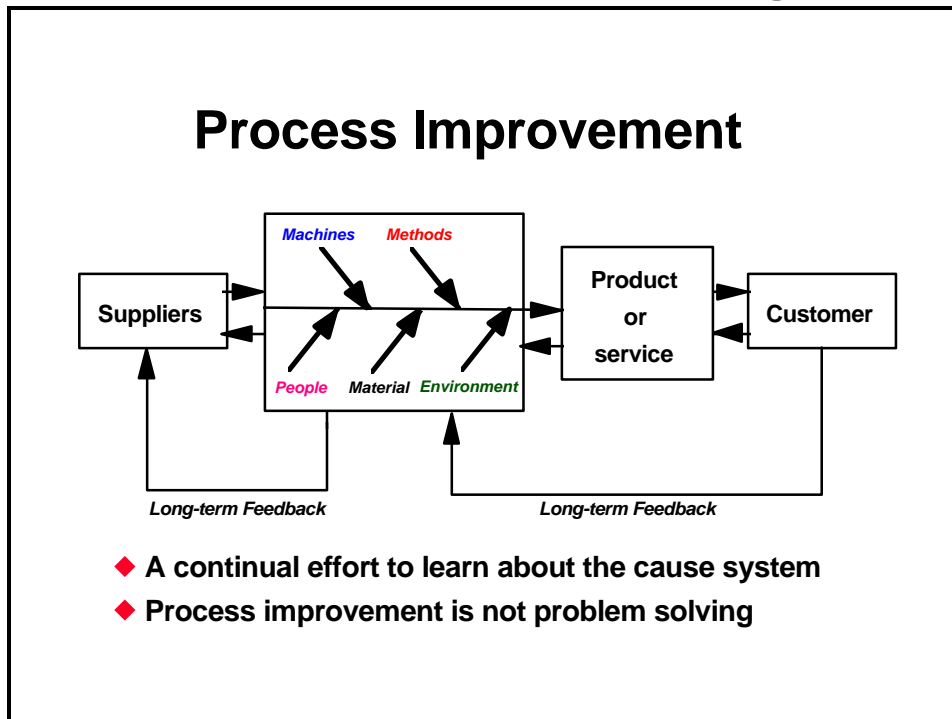
We pointed out some shortcomings of the inspection approach for achieving quality. What is the alternative? What you need to know is that quality is achieved through process improvement. Process improvement means using the prevention approach, not product inspection.

In this viewgraph, the box on the left has been enlarged to show that a product or service is the result of a process that combines at least four separate variables. The dotted feedback lines show that feedback comes from customers and the process itself is used to study and improve the process. There is no inspection box between the product or service and the customer. This shows that quality results from studying and changing the process, not inspecting the final product. Most organizations spend too much time looking at outputs (products and services) and too little time studying and improving processes that produce those outputs. The goal is to prevent defects by improving the process.

Where the objective is to improve the process, data are collected through the earliest feedback loop (Moen and Nolan, 1987). Through a sampling procedure, data are collected upstream to assess process improvement. This upper feedback loop indicates that information on quality characteristics is used to improve the process so that defects are prevented from occurring in the final product or service. The lower feedback loop implies that the organization continually asks for customer reactions to the quality of the product or service. Noting customer feedback ensures that the link between the customer's expectations and the measured quality characteristics continues to result in customer satisfaction. This method of process improvement holds true for internal customers and external customers. In the old approach, you might know the customer. In the process improvement approach, you must know the customer and you solicit feedback on a continual basis.

Again, some inspections may be required for safety reasons. But the focus should be on the process to achieve quality, not on inspection.

Moving from the inspection approach to one of process improvement requires significant changes. The roles of managers and employees, the way people work together, and the way we make decisions need to change. Everyone in the organization must understand that *improvement in products and services will only occur by improving the processes that produce them*. This is a better way for achieving quality.



## Process Improvement

### ◆ A continual effort to learn about the cause system

**Process improvement** is a continual effort to learn about the cause system in a process and to use this knowledge to improve the process by reducing variation and complexity. Quality is achieved through the *reduction of variation*. A **causal system** refers to all the factors that come together to produce a product or service. Usually, causal variables are classified as people, material, machines, methods, and sometimes environment.

The process improvement approach emphasizes the need to know as much as possible about what might be causing variation in a process and to work on those causes to reduce that variation. Reduction of variation may eventually reduce or eliminate the need for inspection after the products have been produced.

Although inspection is not included as a main activity in the process improvement approach, it does not mean that inspection is not required. Inspection is required but the *aim of inspection is different*. The aim of inspection in the product control approach is to segregate the good from the bad. In the process improvement approach, the aim of inspection is the improvement of the cause system.

## ◆ Process improvement is not problem solving

The focus of TQL is on improving systems. **Problem solving** is the effort taken as a reaction to a negative symptom without necessarily understanding how the system contributed to the problem. Usually, people assume that there is a single cause for a problem. This simplistic view hinders learning about the system. If we don't know about our system, we lack a comprehensive understanding about how and why we do things. Because we often lack knowledge, we wonder why significant, long-lasting improvements are rare.

Fixing problems usually satisfies the “fixer.” This prompt reward is very attractive and difficult to replace. It fosters the desire for a continual search for problems and is a barrier to developing the knowledge needed to prevent the problems from happening again. Short-term thinking and planning and a desire for instant gratification are factors that preserve the practice of problem solving. Often the same problems are “solved” over and over again.

Root causes of recurring problems are often overlooked because we fail to ask ourselves why problems arise.

- ▶ Why do we keep getting supplies late?
- ▶ Why do we keep getting the wrong supplies?
- ▶ Why do we keep running out of inventory?
- ▶ Why does it keep taking us so many days to process a travel claim or prepare for deployment?

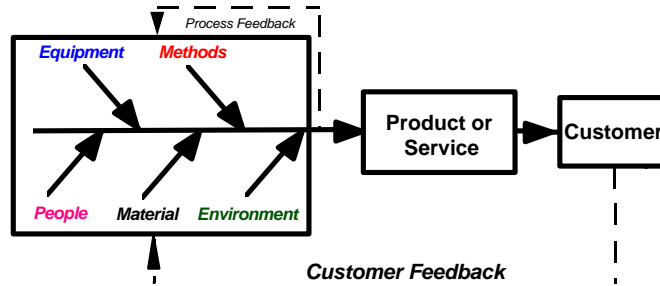
Many problems recur because we address them by problem solving instead of by understanding the process causal system. Diagnosing the effect in order to understand the reason for variation and complexity in our processes takes considerable time and effort. But the time and effort is well spent. Problem solving approaches are inefficient because they do not eliminate the source of the effect. They allow variation to continue. As problems recur they add to the cost of providing product or service to the end-user.

What happens to the warehouse manager's inventory when production suddenly starts shipping 10 percent more rotor heads without talking with supply? How might this situation affect the relationship between the production supervisor and the warehouse manager? To compound the problem, what if the production supervisor is rated on meeting the 10 percent production goal, and the warehouse manager is rated on his ability to maintain satisfactory inventory levels?

Under current business practices, it is unlikely the production department is going to slow down its rotor head output. To do so would make the department appear unproductive. The problem is not with production or with supply. The problem is that each department is rewarded for achieving conflicting goals set by management. Each department wants to optimize its own performance without knowing what is best for the whole organization.



## Investments in Process Improvement



- ◆ *Education and training*
- ◆ *Improving processes and systems*
- ◆ *Measurement and analysis*
- ◆ *Investment in innovation*

## Investments in Process Improvement

A change to a quality approach requires an initial investment of resources. Although increases in quality will eventually lower the cost of doing business, there are often up-front costs. These include education and training, measurement and analysis, and the improvement of processes and systems.

### ◆ Education and training

Education and training are important elements in moving your organization toward a total quality orientation. According to Kaoru Ishikawa, "Quality control begins with education and ends with education" (Ishikawa, 1985).

★ **Additional Information:** This quotation is from the 1985 book, What is Total Quality Control? The Japanese Way, by Kaoru Ishikawa (professor of engineering and international quality control consultant) an important figure in Japan's quality movement.

Quality experts universally advocate the importance of continual education and training in total quality. Without knowledge and skills, the transformation or cultural change cannot occur. Therefore, everyone in the Department of the Navy is receiving TQL training.

## ◆ **Measurement and analysis**

Increasing quality through continual process improvement requires fact-based decision making. Such decision making requires measurement and analysis. You will be doing more measurement and analysis of the process. These activities, along with data collection and monitoring processes, are essential for continual process improvement and will require resources such as training.

## ◆ **Improving processes and systems**

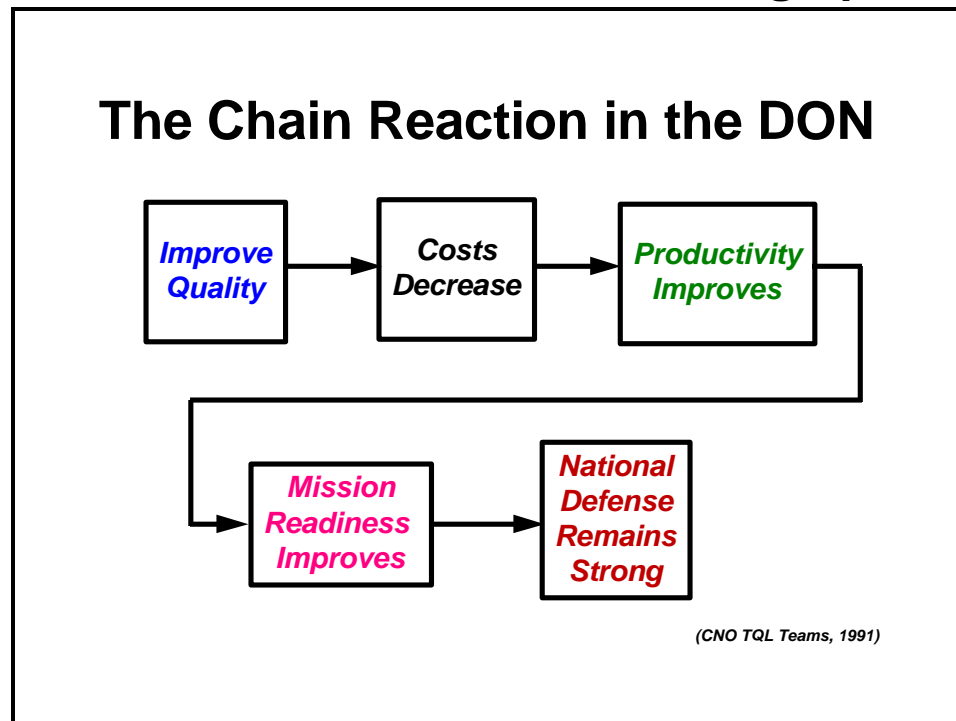
Improvement of processes means change. We're going to be changing processes based on data. Once process improvement is under way, you start receiving a return on investment.

Organizational leaders and subordinates have to understand that they, and the work they do, are elements of a system. The costs involved in improving the processes within a system can range from the time spent examining the system to a potential capital investment. You will learn more about systems in Module 3-1 (Systems).

Measurement and analysis relate more to the machines and material components. Improvement of processes relates more to the methods component. In the long term, process improvement is more cost-effective. Process improvement is the core of the Department of the Navy's approach to improving quality.

## ◆ **Investments in innovation**

Innovation, from a total quality perspective, refers to the application of knowledge that leads to the development of the new processes, products, or services. Innovation requires an environment that encourages and rewards, formally and informally. Other activities that encourage innovation include continuous educational experiences, attendance at professional meetings, conferences, or symposia, study groups (teams) on company time, access to state-of-the-art technology, and participation, from time to time, of people from all levels of the organization.



### The Chain Reaction in the DON

The premise of the customer-based process improvement approach to quality is: As quality improves, costs decrease and productivity increases. With lower costs and higher quality, potential exists for increased market share and growth. This diagram is like the economic module Deming took to Japan. By improving quality, this chain of events will occur.

Let's look at how the chain reaction applies to the Department of the Navy. This chain reaction model (CNO TQL teams, 1991) also predicts that as quality improves, costs decrease and productivity increases. Lower costs and higher quality lead to improved mission readiness. Ultimately, improved mission readiness results in a national defense that remains strong.

In the past, the Navy and Marine Corps, along with most American organizations, have focused on improving productivity through inspection and reducing costs. In the TQL approach, where the focus of leadership is on improving quality, productivity increases because costs are lowered. Lowered costs result because there is less rework, fewer delays, a better use of equipment, and more efficient use of time.

Some people might question how the chain reaction applies to the Department of the Navy. Do we want to capture markets, stay in business and provide more jobs? An assumption that government lacks market competition is inaccurate - there are markets to be captured.

Department of the Navy maintenance organizations (such as shipyards and naval aviation depots) compete for work, sometimes within their community, sometimes with the private sector, and sometimes with both. An example (1988-89) occurred in the naval aviation community when aviation depots competed with private sector companies for maintenance work on the F-14 aircraft. If Department of the Navy commands can produce better quality work than private industry, keeping such work in the government is in the best interest of the taxpayer.

★ **Additional Information:** OMB Circular A-76: The Commercial Activities program is a government program where non-government contractors can bid on work performed by government organizations. If the government proposal loses, government employees can lose their jobs to the private sector.

When government agencies and organizations adopt TQL and apply it effectively, lower costs of doing business make them highly competitive with the private sector, particularly against companies that have not adopted a quality approach.

Goals of the Navy and Marine Corps are different from those of private industry with respect to continuous growth and providing more jobs. But, one goal that is the same for the Department of the Navy and private industry is identified in the third box of the chain reaction - productivity improves. Although productivity can be improved in a variety of ways, the improvement we are talking about here is the result of a customer-based process improvement approach to quality.

☺ **Discussion Question:**

**1. Do you think processes in the fleet can be improved?**

*Everything we do is a process and all missions can be improved using the TQL methodology. Improving processes in squadrons, ships, and shore commands will increase the quality of readiness.*



Understanding the meaning of the chain reaction is especially important because this model is counter to most previously held beliefs about the relationships among quality, costs, and productivity. Many organizations have tried to increase productivity by cutting costs, while trying to hold quality constant. The chain reaction states that decreased costs and increased productivity are results of improved quality. There is a difference in priority, and this model sets the path for understanding that difference.

In the new paradigm, we are saying that as the quality of the production process increases, costs decrease giving the producer more value. The producer has more value because a product costs less to produce. For the customer, value is determined when the price is set. The value is increased to the customer when both initial price and long-term costs decrease because the quality of the product or service is better, resulting in less rework or scrap.

## Why Focus on Quality?

- ◆ The DON needs to maintain mission readiness
- ◆ There is a new direction for the DON
- ◆ The aim should be distinction in service
- ◆ TQL can help the DON meet the goals of the National Performance Review
- ◆ The U.S. needs to continue to improve its competitiveness in the world marketplace

### Why Focus on Quality?

- ◆ The DON needs to maintain mission readiness
  - With pressures to eliminate the annual deficit and reduce the national debt, and with the decline of the Soviet threat, Congress has increased pressure on DOD to cut defense spending.
  - American industry needs to reduce the costs of operations while improving the quality of its output to continue to meet the operational needs of the DON. The economic well-being of American industry has a profound effect on the quality, support, and maintenance of our defense systems.
  - The reduced defense budget reflects this country's new priorities and the changes taking place in the international community (Howard, June 1992, p. 85).
  - The Navy and Marine Corps need to focus on quality to preserve the integrity of their mission. They need to become more efficient in their processes to improve operational readiness.

## ◆ There is a new direction for the DON

The new direction for the DON in . . . ***From the Sea: Preparing the Naval Service for the 21st Century*** (September, 1992) and ***Forward... From the Sea*** (October 1994) requires changing processes that relate to doctrine, education, service integration, training, acquisition, infrastructure, operations, risk reduction, etc.

- Naval expeditionary forces make unique contributions to peacetime operations, responding to crises, and in regional conflicts by projecting the power and influence of the Nation across the seas to foreign waters and shores.
- Emphasis is on joint and combined operations for the Navy and Marine Corps through teamwork that is flexible and powerful enough to meet national security requirements.
- Emphasis is on improved capability in the DON's sealift mission to provide the necessary resources to meet operational requirements.
- The Navy and Marine Corps will be "operating forward" to demonstrate overseas commitment and promote American interests.
- The shift is to regional, littoral or "near land" area, and expeditionary focus of warfare that will bring change to naval commands.

If the DON continues to manage the way we have always managed, the DON can become incapable of effectively accomplishing its mission. If the DON adopts a total quality approach, it can better use the talents of all the people in the DON to create a "lean, powerful maritime force for this country's future" (Howard, 1992, p. 86).

★ **Additional Information:** Refer to the Additional Reading listed in the Instructor Information section of this module. The Department of the Navy has published their vision, guiding principles, and strategic goals in the Strategic Plan for Total Quality Leadership. The Guiding Principles established by the ESG direct the Department of the Navy's mission and vision. According to UNSECNAV Howard, the mission is "to provide the National Command Authority with the capability to wage prompt and sustained combat on and from the sea" (Proceedings, June 1992). The CNO has published a mission statement and a vision for the operating forces. The CMC has also published a White Letter.



◆ **The aim should be distinction in service**

The quality concept ties in with government service.

**In most governmental services, there is no market to capture. In place of capture of the market, a governmental agency should deliver economically the service prescribed by law or regulation. The aim should be distinction in service. Continual improvement in government service would earn appreciation of the American public and would hold jobs in the service, and help industry to create more jobs** (Deming, 1986). (Underline Added)

Producing a product or service within the government is not usually directed at capturing the market share. Instead, you should be concerned about reducing costs, and your aim should be distinction in service.

**Distinction in service** is good for our reputation. Having a positive reputation is important for survival in government agencies. For example, what do you think would have happened to NASA if there had been a **second** disaster like the Challenger? Although the agency might still be in business, its budget would probably have been reduced further and its reputation tarnished even more.

We have a moral obligation to the taxpayers -- to ourselves -- to provide distinction in service at reduced cost. We all want to do a good job.

Does quality in government service mean continual employment? If we can do better and lower costs, maybe. Your command is more likely to survive if you have a positive reputation for quality.

Going beyond the Department of the Navy, we saw successful cooperation across the services and across countries during Desert Storm.

☺ **Discussion Question:**

1. **You've all heard the statement "Good enough for government work." What does that mean to you?**

◆ **TQL can help the DON meet the goals of the National Performance Review**

The National Performance Review's mission, initiated in March 1993, is to make government **work better** and **cost less**. The purpose of the 6-month review of all government agencies was to identify problems and propose ways to improve service and efficiency in every unit of government. It is intended to reinvent government through the development and execution of quality initiatives.

Vice President Gore, in charge of the National Performance Review, stated, "Our primary objective is to improve the quality of the services delivered" and to make the government "see the people and organizations it serves as customers" (Shoop, July 1993, pp. 18, 20). A report from the review, *Creating a Government That Works Better & Costs Less*, released in September 1993, recommends focusing on cutting red tape, putting customers first, empowering employees to get results, and getting back to basics. TQL can help the DON meet the goals of the National Performance Review.

◆ **The U.S. needs to continue to improve its competitiveness in the world marketplace.**

- After World War II the U.S. relied on quality control to achieve quality and focused more on quantity.
- U.S. growth in productivity has increased very slowly since the early 1970s.
- The U.S. trade deficit remains high.
- Many in the U.S. labor force lack basic skills and may need remedial education.
- Many U.S. CEOs continue to focus on short-term profits rather than on market share and long-term gains.

★ **Additional Information:** Some of the following examples can be used to illustrate the challenges for the DOD and the DON:

- The DOD purchases approximately \$100 billion worth of goods and services each year. These industries, which support the DOD, affect the quality of our defense systems and their support and maintenance.
- The Gramm-Rudman-Hollings Deficit Reduction Bill resulted in reduced budgets for the military.
- The President's Executive Order 12637 (27 April 1988) requires a continuous 3 percent annual productivity increase in certain federal agencies. This order requires organizations to develop productivity improvement plans.
- The National Strategic Plan (August 1991) describes a 25 percent reduction in DOD.

★ **Additional Information:** DOD dependence on the global marketplace:

- Quality-related problems cost DOD 25 to 40 percent of its operating budget.
- The costs of quality: 20 to 25 percent of costs for DON purchases are due to quality defects.
- Lower costs for repairing or replacing flawed products means the DON can use funds for other critical needs.
- The budget is being reduced, but there is a continued need for readiness.

## Benefits of Focusing on Quality

- ◆ Improves operational readiness of our armed forces
- ◆ Improves organizational efficiency and effectiveness
- ◆ Eliminates waste, reduces costs, and increases productivity
- ◆ Enables everyone to make meaningful contributions to their work

### Benefits of Focusing on Quality

#### ◆ Improves operational readiness of our armed forces

Although the Soviet threat has been significantly reduced and the economic realities of our domestic economy dictate decreased defense spending, the readiness of our armed forces remains vital. The U.S. remains the only “super power” and shoulders an awesome responsibility for world security at a time when components of the former Soviet Union retain nuclear offensive capabilities. The military capabilities of the People’s Republic of China continue to grow and become more sophisticated. Regional unrest continues throughout the world (e.g., Haiti, Bosnia, Iraq); terrorism flourishes world-wide; and nuclear proliferation and the development of other weapons of mass destruction continue apace. **Operational readiness is the degree to which the armed forces are capable of accomplishing their mission efficiently and effectively.**

## ◆ Improves organizational efficiency and effectiveness

Efficiency and effectiveness are important dimensions of organizational performance. **Effectiveness means doing the right things as defined by the customer or mission. Efficiency means improving the way the work is accomplished.** Both are important ways to improve the command. Simplifying is an example of increasing efficiency. Identifying and improving significant processes that affect customer or mission requirements is an example of increasing effectiveness.

When people use new methods, they often mistakenly try to improve internal efficiency without adequately considering external, or mission effectiveness. The organization that reduces the variety of equipment or services it provides to simplify its internal processes might lose or frustrate customers who don't happen to like the limited offerings. The organization might never find out why their former reputation for products or services has suffered, in spite of vastly increased internal efficiencies.

Another example is the division that prides itself on processing great quantities of reports and messages but fails to distinguish the few important ones that require action.

Our armed forces must still use every means to increase mission performance. TQL offers a proven way to meet our commitments effectively with reduced resources. With anticipated cuts in government funding and personnel end strength, the bottom line for many organizations, both public and private, is the need to focus on quality in order to become competitive, survive, and improve operational readiness.

## ◆ Eliminates waste, reduces costs, and increases productivity

People are often surprised by the notion that high quality and low cost are not mutually exclusive. We learned that when rework is eliminated or reduced, costs go down and productivity improves. When people invest their efforts in **how** to do something better, they accomplish their job with increasing ease and speed. This happens because their methods become more consistent and the cumulative costs of mistakes and rework are reduced.

Focusing on "Total Quality Leadership in the DON will deliver better combat readiness, better sustainability, better operational support, and a better infrastructure. In doing that, it will sharply reduce costs, accident rates, and system failures" (Howard, 1992, p. 86).

◆ **Enables everyone to make meaningful contributions to their work**

A quality transformation changes the way work is managed and people are led. It changes the relationships between managers and workers, between a leader and his or her people. In an organization that focuses on quality, people are viewed as an asset to an organization; encouraged to provide their best ideas, skills and efforts; and given adequate education and training to make them multi-skilled. This enables the people who work most closely with the everyday processes and procedures of their jobs to make meaningful contributions that will improve their organization or command. Their role should be as partners with leaders working to meet mission requirements.

★ **Additional Example:** A Fleet Aviation Squadron experienced excessive delays in correcting some aircraft discrepancies. Research by a quality improvement team indicated that the primary delay was caused by late receipt of parts from the Supply Center. The Squadron was averaging 12-15 rejects each month (a reject was defined as a request for a part that was returned to the Squadron due to an error or inconsistency in the request). Such rejects created a 1-2 day delay in part acquisition. A team of AK's was formed to establish a reject log in which each reject, its cause, and the work center originating the request was recorded. The team screened parts requests more closely and returned them to work centers for correction, if required, before submission to the Supply Center. The results were immediate: (1) Supply Center rejects reduced to 2-3 per month; (2) associated man-hour savings in avoiding rework (1-2 hours per reject avoidance); and, (3) increased aircraft availability (aircraft down-time decreased 1-2 days per reject avoidance).

★ **Additional Example:** At the Naval Aviation Depot, Marine Corps Air Station (Cherry Point, North Carolina), a study team developed a computerized system that provides detailed tracking of Local Engineering/Process Specifications (LES/LPS) throughout the screening process. These are documents used to guide specific production operations. The team achieved a 50% reduction in the number of LES/LPS and a 61% decrease in total screening process time (Federal Quality Institute Quality Improvement Prototype Award, 1993).

**★ Additional Example: Marine Corps Logistics Base, Albany, Georgia**

Through quality improvement efforts, this organization has been able to reduce backlog, improve data accuracy and turnaround time, and increase savings. In the Depot Maintenance Activity, a team was formed to streamline the repair/rebuilding of amphibious assault vehicles to meet a goal of one vehicle per day and to significantly reduce labor and material costs. As a result of these efforts, they achieved a \$10 million savings in production during FY92 (*TQL in the Department of the Navy: What It Is and How It Works*, 1992, Department of the Navy TQL Office).

**★ Additional Example: Space and Electronic Warfare, Office of the CNO**

Space and Electronics Warfare is responsible for the Navy communication system. In late August 1990, at the start of Operation Desert Shield, Navy message traffic began to build dramatically. To deal with the backlog, the Director formed a team to gather and analyze traffic data and to make recommendations for streamlining the communication system. As a result of that quality improvement effort, message transmission capacity per day increased three-fold within a week of taking action. Message backlog was reduced by 50%. Errors in message transmission were reduced and response time improved significantly.

**★ Additional Example: Naval Aviation Supply Office, Naval Supply Systems Command**

The Naval Aviation Supply Office (ASO) controls the purchase, distribution, and repair of spares for Navy and Marine Corps aviation worldwide. Through top management commitment and transformation to a quality leadership environment, ASO reduced back orders by a significant amount in a two-year period. Recommendations from a team resulted in some \$322 million being "de-obligated" and made available for other budget requirements. Another team eliminated a number of steps and supervisory checks in its process of assigning stock numbers. This resulted in a reduction of processing time and in backlog of Navy Item Control Numbers, which are used prior to assignment of National Stock Numbers. Results of an all personnel survey were used to help managers and supervisors change to a coaching, facilitating managerial style.

## DON Definition of Total Quality Leadership (TQL)

*The application of quantitative methods and the knowledge of people to assess and improve:*

- ◆ Materials and services supplied to the organization
- ◆ All significant processes within the organization and
- ◆ Meeting the needs of the end-user, now and in the future

## DON Definition of Total Quality Leadership (TQL)

*TQL is the application of quantitative methods and the knowledge of people to assess and improve :*

- ◆ Materials and services supplied to the organization
- ◆ All significant processes within the organization and
- ◆ Meeting the needs of the end-user, now and in the future

**Total** refers to the whole system, all of the processes and all of the people. The Department of the Navy is one large system which is part of the larger system of the Department of Defense. You have learned about organizations as systems, about systems theory, and that systems are composed of processes. When an organization focuses on processes instead of outputs, quality can be managed, not just controlled.

An organization that takes a systems view will recognize the need for teamwork and will support the teams which will achieve the long-term aims of the organization.



**Quality** is defined by the **customer**. You now know that quality must be built into a product or service and not inspected out. You learned the importance of identifying internal customers and external customers and making their feedback an integral part of all processes. This customer feedback system must be active, timely and reliable. Doing your best has no meaning if your customer isn't satisfied.

You know that quality must be obtained through measuring processes and through continual improvement. Now you probably can tell the difference between special causes and common causes. Common causes -- which can only be remedied by leadership -- affect quality the most. You know it is important for a process to reach a stable state before it can be improved, and that you cannot be sure a system is stable without measuring the processes in the system.

TQL treats quality as a long-term objective, something to be built into the culture of the organization. It is a strategy for leadership and management. TQL integrates all values, beliefs, assumptions, and plans into the same mission, the same organization, so that all resources and improvements will be directed toward making it a quality-focused organization.

**Leadership** is needed to manage the whole system to provide for a total quality culture. Leaders, as a team, set the example for the commitment to quality. They provide direction, resources, and support to all of the organization's teams. They lead us in the transformation or cultural change.

Leadership must be practiced by more than just the top leaders. Leadership can be demonstrated by people at many levels of the organization, from Executive Steering Committee members to Process Action Team members.


Leaders must see the organization as both a social and technical system. They must provide a proper balance between the social (and psychological) needs of the people and optimizing the technical needs of the organization.

TQL emphasizes **leadership** and the new responsibility of command commitment to quality. Leaders set the quality policy and priorities in the organization. Leaders also solidify improvements so they become a permanent way of doing business in the DON. **TQL reinforces and supports the chain of command.**

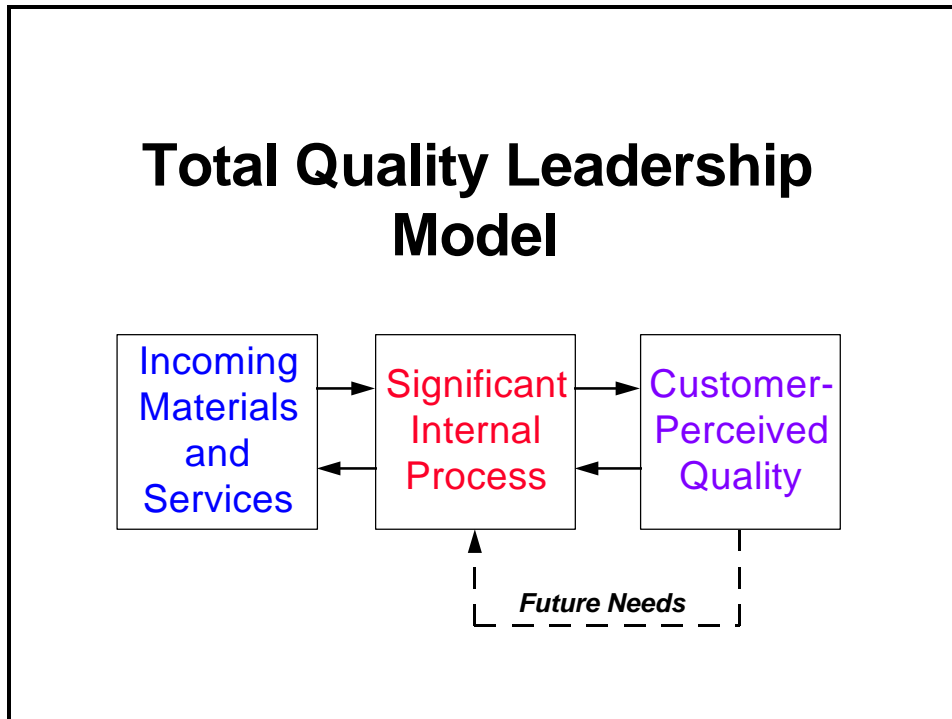
There are five important elements to this definition.

TQL is the application of **quantitative methods** (that is, people at all levels of the organization will use objectively measured data), and the **knowledge of people** (and that means placing value on people and their knowledge at all levels of the organization), to assess and improve these next three items for the better:

- **Materials and services** supplied to the organization
- All **significant processes** within the organization
- Meeting the needs of the **end-user**, now and in the future

 **Instructor Direction:** Point to the five key elements of the definition as you discuss each element (**quantitative methods, knowledge of people, materials and services, significant processes, and end-user** .)

If the aim of the organization is to meet the needs of the end-user, now and in the future, then this definition is telling us that the end-user defines quality, not the organization. This is contrary to how most organizations have operated in the past.



### Total Quality Leadership Model

While there can be no question of the importance of quantitative methods and the knowledge of people for bringing about a successful total quality effort, the heart of TQL focuses on three fundamental elements:

- The relationship among incoming materials and services ,
- Significant internal processes, and
- Customer-perceived quality.

The model is presented in this form to represent TQL as a system of leadership and management. You will learn about systems in the next module.

**Let's start with the box on the right, customer-perceived quality.** Some organizations start to work on total quality with processes aimed at internal customer needs. Unfortunately, many organizations never move on to address the quality requirements of their external customers. If we pay no attention to the needs of the end-user (customer), we may efficiently produce goods and services that the customer does not want.

The reason we say perceived quality is because perception is really all there is - our perceptions as customers, whether correct or not, determine our decisions.


**Now let's discuss the middle box, significant internal processes.** In a total quality organization, the focus will be on those processes that are mission related. Organizations must focus on these significant processes first if they want to use their resources optimally.

**Looking at the box on the left, incoming materials and services.** If we pay no attention to the quality of incoming materials and services from our suppliers, the result may be waste and increased cost. Quality products require quality materials and services. We need to remember that materials and services come from both internal and external suppliers.

**The connecting arrows among the three elements show the communication links that represent:** (a) a decision to accept or reject a product or service (forward arrow), or (b) feedback for product improvement (backward arrow).

Note that, in the case of customer-perceived quality, there are two feedback arrows. The solid-line feedback arrow represents customer information about the quality of the products or services being received. The dotted-line feedback arrow represents marketing information for future requirements and innovations.

The full potential of TQL cannot be realized without addressing all three elements in this model and maintaining constant, two-way communication among them.

 **Instructor Direction:** Inform the class that the model is greatly expanded and detailed in the TQL course titled the *Systems Approach to Process Improvement*.

★ **Additional Information:** One reason why quality circles have had limited success in this country is because top leaders are not involved. This is discussed in the NPRDC technical report, An Evaluation of Quality Circles in Department of Defense Organizations (1989) by P. Konoske and M. White.

Quality circles are generally organized at lower levels in the organization and deal with problems that may not be mission-related. Most problems involve "quality of work life" issues such as allowing people to select their office furniture or painting the cafeteria. Solving these problems can be important, but they have little to do with improving products and services to external customers or to the success of the organization. Other reasons for the failure of quality circles are a reliance on volunteers for participation and a lack of vertical communication and participation from the top.

★ **Additional Information:** The following information may help if questions arise about defining products or customers.

According to Dr. Joseph Juran (Juran, 1989), a product is the output of any process and may be classified as (a) **goods** (this means physical things such as automobiles, televisions, rotor blades, etc.), (b) **information** (such as conversations, annual reports, plans, advice), or (c) **services** (this means work done for someone else such as recruiting, transportation, plant maintenance, etc.).

A research sponsor receives **information** (reports, progress reports, justification of the effort, etc.). A supply point receives **goods** (the engine), **information** (documentation), and **service** (engine received by a certain date, at the correct location, in one piece, etc.). **Both** the research sponsor and the supply point are customers, but their customer requirements differ from those of another kind of customer, the end-user, and need to be treated appropriately.

## Total Quality Leadership is:

- ◆ *Leader-led*
- ◆ *Team-oriented*
- ◆ *Fact-based*
- ◆ *Customer-driven*
- ◆ *Quality-focused*

### Total Quality Leadership is:

#### ◆ Leader-led

The change of the acronym TQM (management) to TQL (leadership) by the DON senior leaders reflects the importance they placed on the role of the leader in directing the transformation to quality. **It is clearly the leader's intent and initiative that will determine the success or failure of total quality in any organization.** Only the leadership can institutionalize changes in leadership and management practices so they become routine in the organization.

The transformation effort cannot be done alone. Leaders have to be identified who have enthusiasm for total quality. Some people will buy into the principles of TQL almost immediately while others never will. In the early going, when you are attempting to develop a "critical mass," focus on the believers -- those willing to improve mission performance in a systematic way.

The leader will need to: (a) recognize the roles required of subordinates, (b) provide them with adequate resources (education, training, time), (c) give them the authority (as well as the responsibility) to act, (d) set up organizational structures and procedures to promote the required changes, (e) initiate process improvement efforts, and (f) design incentive systems to motivate participation. The leader will need to find ways to continuously send the message, loud and clear, that the pursuit of total quality is a top priority and, then, continuously demonstrate commitment to that priority by word and action.

### ◆ Team-oriented

TQL is a team-oriented method of leadership and management. According to organizational behaviorists Larry Miller and Jennifer Howard (1991), managing through teams is not done just to involve people and make them feel better. Management through teams is an approach focused on continual process improvement throughout an organization.

Teamwork in a total quality organization is a **process** and requires continual improvement just like any process. One of the courses in the DON TQL curriculum, *Team Skills and Concepts*, addresses team process issues and presents ways team processes can be improved.

Finally, a team should have an **aim** that relates directly to the overall mission of the organization. The existence of teams that do not address mission essential processes needs to be reassessed. The importance of a team-oriented approach will be covered in detail in Module 2 (Quality Improvement Teams).

### ◆ Data-based

Too often, leaders and managers make decisions based on insufficient or inappropriate information - without knowledge. Decisions may be based on intuition or gut feelings, personal opinions, or what worked in the past. This kind of decision making is called "shooting from the hip." There may be times when conditions dictate this kind of decision making, but it should not be the accepted practice. Quality management requires decision making based on data.





At the start of a total quality effort, obtaining the proper data will take time. As data-gathering systems are put in place (e.g., control charting), pertinent information for decision making will become more visible. Good decision making requires good information. While it is not always clear what, or how much data are appropriate, taking action based on limited data will clearly lead to future problems.

#### ◆ **Customer-driven**

A primary responsibility is to determine customer or mission requirements on a continuing basis and improve the processes that deliver the products and services that meet those requirements. For the combatant forces, mission performance effectiveness criteria will be important in determining where improvements in process, product, and services will be required.

#### ◆ **Quality-focused**

Total Quality Leadership rests on the premise that **quality**, based on customer or mission requirements, is the key to performance improvement. However, improving quality, primarily through continual process improvement, will occur if, and only if, quality is a top priority. Quality efforts cannot be turned on and off like a faucet. With quality as your primary focus improved performance, as measured by other indicators or dimensions of quality, will naturally follow.

As will be seen in Module 3-1 (Systems), a focus on any one dimension, such as cost or schedule, may represent short-term or limited thinking and give rise to **suboptimization**. A focus on quality represents long-term thinking, promotes **system optimization**, and will enhance performance over the long run.

## Total Quality Leadership is **not**:

- ◆ *Delegated*
- ◆ *Easy*
- ◆ *Just teams*
- ◆ *Just SPC*
- ◆ *Touchy-feely*
- ◆ *A program*
- ◆ *Maintaining the status quo*
- ◆ *A Japanese invention*

### Total Quality Leadership is not:

While the DON's definition covers the broad and essential aspects of TQL, it cannot cover all of the associated concepts, principles and assumptions. There are a lot of misunderstandings or misinterpretations and myths about what TQL is and is not. The following are some of the "is nots."

#### ◆ Delegated

The responsibility for TQL implementation cannot be delegated. The leader cannot delegate quality improvement to subordinates and then watch from the sidelines. In support of this concept, Tribus (1983, p. 3) writes that:

The workers work **in** a system. The job of the manager is to work **on** the system, to improve it and thereby to improve the quality of the output and decrease its cost. (Emphasis added)

Leaders who delegate quality improvement have forgotten, or are unaware of, this important distinction.

## ◆ Just teams

A common tendency of organizations in the early stages of adopting TQL is to identify a problem and then turn it over to an ad hoc team. A problem or task is identified -- a team is formed. Quite often teams are given little, if any direction about what the task really is, what the best approach might be, or what the final solution should look like. The formation of teams without providing a clear sense of direction is a waste of valuable resources.

Because TQL is a team-oriented approach, it is common to see a proliferation of teams. Sometimes leaders and managers use "number of teams" as a measure of evaluating the success of TQL in their organizations. They do not understand the vital role teams play in a total quality organization. The importance of teams will be discussed in Module 2 (Quality Improvement Teams).

## ◆ Touchy-feely

A central principle of TQL requires a closer working relationship between individuals, and between leaders and managers and their subordinates. Critics of TQL perceive such relationships as possibly making people feel better but having little to do with improving organizational performance.

Such perceptions are misleading. When people work together, particularly on quality improvement teams that address issues associated with their work, cooperation may be enhanced. Increased cooperation often results in greater trust. Greater trust can reduce fear and foster a willingness for people to use their knowledge and ideas to engage in process improvement and innovation. People can take pride in their work. A work environment that fosters process improvement and innovation, guided by leadership, can have very positive economic consequences for the organization.

## ◆ Maintaining the status quo

TQL is the opposite of maintaining the status quo. Its primary focus is on changing leadership and management practices, and its ultimate aim is **continual improvement** in products and services. When practiced correctly TQL will require a major change in the way an organization conducts operations - it requires a transformation of leadership and management practices.

## ◆ Easy

The practice of TQL is not easy. It means changing some of the fundamental ways leaders manage. It also requires a commitment to continuous study -- both formal education and self-study. TQL requires the senior leader to convince other leaders and managers in the organization that the study and practice of total quality is in their best interest as well as the best interest of the DON. Leaders and managers may initially perceive this responsibility as a threat to their authority.

Because greater emphasis is placed on planning, leadership and management **decisions and actions will take longer and patience will be required**. This is not to say that **all** decision making will take longer or require prolonged analysis -- certainly combat decisions are not made this way.

Since the road to quality is through the continual improvement of significant processes, leadership will need to learn to apply the methods of continual process improvement and establish procedures for directing and monitoring improvement activities.

## ◆ Just SPC

There is a misconception that total quality can be achieved through the massive application of statistical methods and graphic tools, e.g., flow charts, pareto diagrams, cause-and-effect diagrams, statistical process control (SPC), etc. These will be discussed in Module 5 (Process Improvement Tools). The use of methods and tools is important but cannot by itself guarantee quality. Quantitative methods will not be useful without an understanding of how they can most effectively be applied to improve quality. Methods and tools provide a means for gaining information (data), but only when applied correctly in the context of process management.

Sometimes leaders and managers use the number of statistical charts developed as a measure for evaluating the success of TQL in their organizations. Total quality is not a game to see how many charts can be constructed. The objective of TQL is continual improvement of processes that produce products and services to meet customer or mission requirements. Statistical methods represent a means for understanding how to meet those requirements.

## ◆ A program

TQL is not another human relations program. It is not quality circles or management by objective (MBO). Programs such as quality circles and MBO, as practiced in the Western World, have a limited focus. TQL, on the other hand, is a leadership and management system. You are in the process of learning those principles and must continue the learning process in your command if you intend to effectively pursue quality. Continual learning is as much a part of TQL as is continual process improvement. The goal of the DON is to have the leadership and management practices of TQL augment or replace current practices.

## ◆ A Japanese invention

Total Quality Leadership, as mentioned earlier, is based on the DON's interpretation of the quality leadership principles set down by Dr. W. Edwards Deming. Deming was an American. Many of his ideas, especially the relationship between statistical theory (variation) and quality, came from Dr. Walter Shewhart, also an American. Deming willingly taught his principles of quality to managers in America and Japan. Japan listened in 1950, and America began to listen in the early 1980's. The DON was one of the first American organizations to listen to Deming and, more importantly, to begin to apply his principles.


### ★ Additional Information: Some common false starts:

- Action without knowledge
- All education/training, no action
- Team paralysis
- No senior leader involvement
- Focus on non-significant processes

# *Videos...*

***“TQL Welcome Aboard”  
and  
“TQL: A Marine Experience”***

**Videos: “TQL Welcome Aboard” and “TQL: A Marine Experience”**

 **Videos:** Show the videos: “TQL Welcome Aboard” and “TQL: A Marine Experience”

**Time: 26 minutes** for TQL Welcome Aboard

**Time: 15 minutes** for TQL: A Marine Experience.

You may want to take a break after the first video or you may choose to show both back-to-back.

## **Module Summary**

- ◆ **Quality has many dimensions and is difficult to define**
- ◆ **The customer defines quality**
- ◆ **Every product or service produced in the organization is the result of a process**
- ◆ **Process improvement is fundamental to total quality**
- ◆ **DON's chain reaction shows the relationship between quality and mission readiness**
- ◆ **DON has endorsed a new approach called Total Quality Leadership (TQL)**

## **Module Summary**

TQL emphasizes continual improvement through effective management practices, focusing on the customer, the use of statistical techniques, and systems-thinking.

In this module you were introduced to the DON's approach to quality and progress in the quality movement. You learned that Deming introduced statistical quality control to the Japanese where quality improvement became a first priority. In the videotapes, you saw that many organizations, including many Navy and Marine Corps, have adopted the quality management approach.

### **◆ Quality has many dimensions and is difficult to define**

You learned that there are many dimensions of quality which offer a framework for thinking about how customer requirements determine quality. You also learned that quality can be difficult to define. Customer perceptions, context, and needs and wants of the customer define quality.

### ◆ **The customer defines quality**

You learned that the customer defines quality, not the organization. Organizations must deal with their customer's definition of quality to improve the quality of a product or service. However, identifying the customer is not always easy. The key to identifying and satisfying the customer is to identify customer requirements and then aim toward exceeding customer expectations. You need to develop measures to assess the effectiveness of meeting those customer requirements. The supplier and the customer both must have a clear understanding of specific quality characteristics.

You also learned that customers want a certain level of quality at a price they're willing to pay, and that value has different meanings for different customers.

### ◆ **Every product or service produced in the organization is the result of a process**

You learned that a process can be defined as a series of operations or steps that result in a product or service. Process is also defined as a set of causes and conditions that work together to transform inputs into outputs.

You learned that all work is composed of processes, one of the most significant insights people can have about TQL.

### ◆ **Process improvement is fundamental to total quality**

You learned that quality is a set of characteristics of a product or service and is created by a process.

A total quality approach focuses on the process by which quality is achieved instead of based on inspection of a finished product or service.

A total quality organization manages processes and not outputs. Remember that when we manage outputs (inspection), the defects or mistakes are already there - we are managing failure. We must focus on the processes that create the product or service in the first place.

You learned that an organization should focus on significant processes rather than processes that have no direct effect on the mission of the organization and the external customer.



◆ **DON's chain reaction shows the relationship between quality and mission readiness**

You learned that the chain reaction shows us how quality affects mission readiness. The chain reaction means that an increase in quality improves mission readiness, with a decrease in cost. This reaction occurs when: (1) quality becomes the first priority for leaders, and (2) the new approach to quality leadership is undertaken.

◆ **DON has endorsed a new approach called Total Quality Leadership (TQL)**

You learned why the Department of the Navy must change its approach to quality. The Department of the Navy calls this new approach Total Quality Leadership because of the emphasis on top-down leadership responsibilities.

In the next module, you will see how this change to a quality management approach is accomplished when we begin to look at the DON's Quality Improvement Team structure.